

734L

UHF/FM
Handheld
Transceiver

Owner's Operating And Maintenance Manual

Contains: Specifications • FCC Information •
Operation • Installation • Theory of Operation • Per-
formance Tests • Alignment Procedure • Trouble-
shooting Charts • Complete Drawings • Parts Lists



**Standard
Communications**

SPECIFICATIONS

Performance specifications are nominal, unless otherwise indicated, and are subject to change with out notice.

GENERAL

| | |
|---|---------------------------------|
| Frequency Range | 406 - 420 and 450 - 512 MHz* |
| Number of Channels | 6 |
| Input Voltage | +11.25 VDC ($\pm 15\%$) |
| Current Drain (Standby) | 20 mA |
| (Receive) | 0.22 A |
| (Transmit) | 1.1 A (Hi), 0.7 A (Lo) |
| Channel Spacing | 25 kHz |
| Battery Life (10%/10%/80% Duty Cycle) | 8 hours min. (Lo) |
| Dimensions | 6 7/16" H x 2 1/2" W x 1 3/4" D |
| Weight | 1 1/2 lbs. |
| Compliance | FCC Parts 21,22,83,90,95; DOC |
| FCC Type Acceptance Number | APV9T20280 |
| GSA Contact Number | GS-00S-44560 |

RECEIVER (Measurements made in accordance with EIA Standard RS-316-A)

| | |
|--|--------------------|
| Sensitivity (12 dB SINAD) | 0.35 μ V max. |
| (20 dB Quieting) | 0.5 μ V max. |
| Squelch Sensitivity (Threshold) | 0.25 μ V max. |
| Modulation Acceptance Bandwidth | ± 6.5 kHz min. |
| Selectivity | 70 dB |
| Spurious and Image Rejection | 55 dB |
| Intermodulation Rejection | 63 dB |
| Audio Power Output @ 10% Distortion | 0.8 W |
| Frequency Stability (-30°C to $+60^{\circ}\text{C}$) | $\pm 0.001\%$ |
| Channel Spread | 2 MHz |

TRANSMITTER (Measurements made in accordance with EIA Standard RS-316-A)

| | |
|--|-----------------------------|
| RF Power Output | 3.5 W (Hi), 1.5 W max. (Lo) |
| Spurious and Harmonic Emissions | 50 dB |
| FM Hum and Noise | 50 dB min. |
| Modulation | 16F3 |
| Audio Distortion | 5% |
| Frequency Stability (-30°C to $+60^{\circ}\text{C}$) | $\pm 0.0005\%$ |
| Channel Spread | 5 MHz |

*F1 = 406-420 MHz

F3 = 450-470 MHz

F4 = 470-490 MHz

F5 = 490-512 MHz

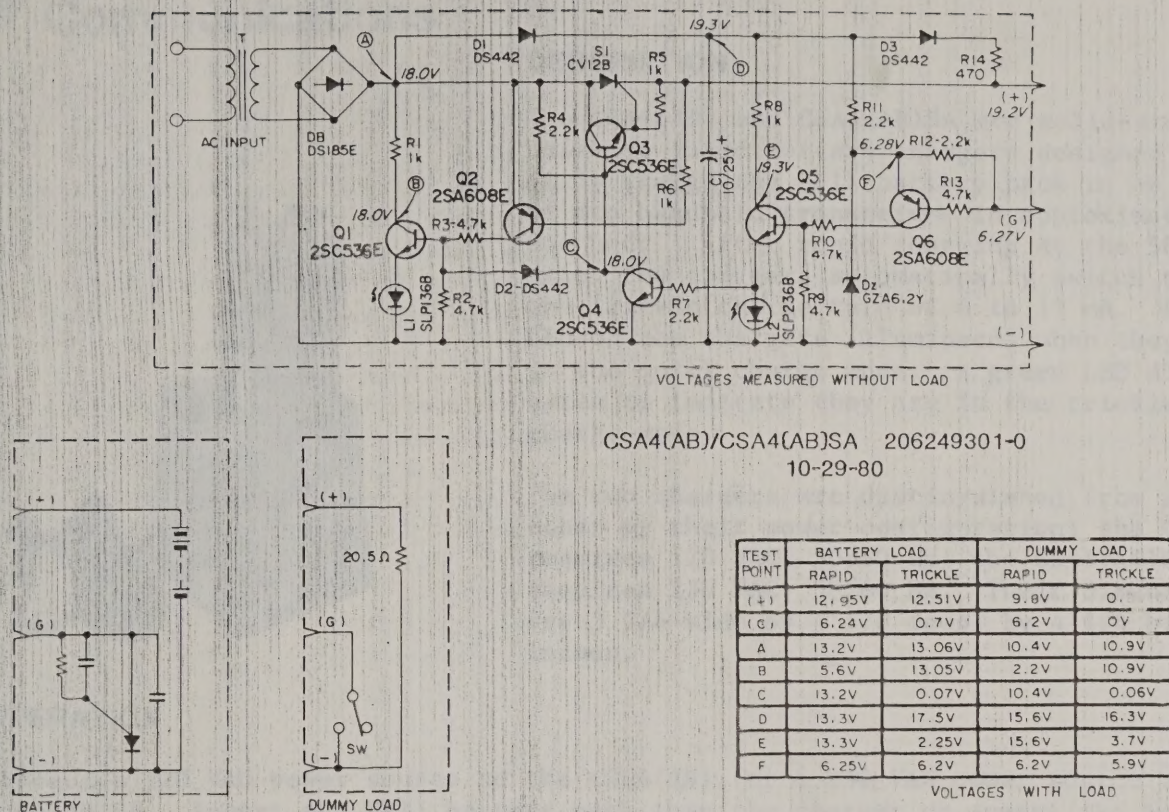


FIGURE 1. CSA4(AB), CSA4(AB)SA SCHEMATIC DIAGRAM

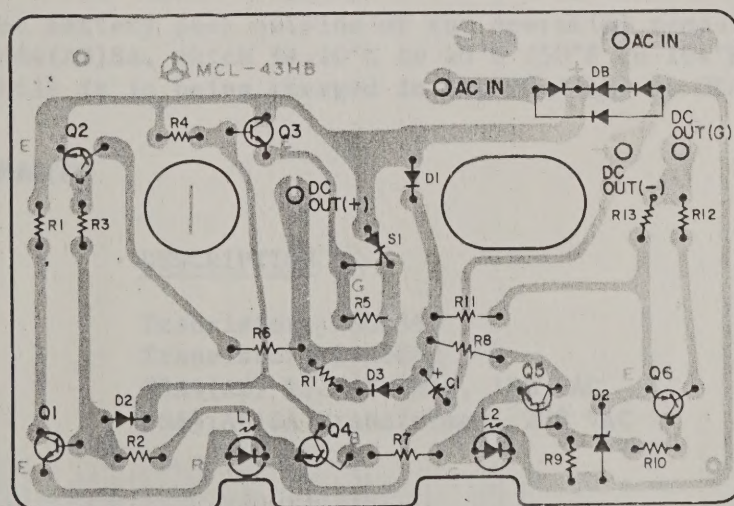
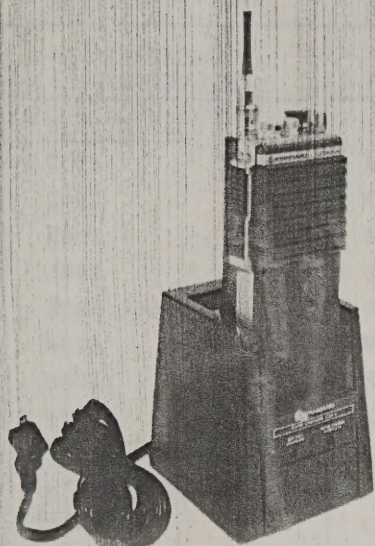


FIGURE 2. CSA4(AB), CSA4(AB)SA P.C. BOARD LAYOUT
SOLDER SIDE WITH COMPONENT OVERLAY

DESCRIPTION


The CSA4(AB) and CSA4(AB)SA are solid-state desk-top rapid battery chargers designed to fully charge the BP11 battery pack in or out of its handheld transceiver in approximately one hour. After rapid charging at the 500 mA rate, the chargers automatically switch to the trickle charge rate of 6 to 11 mA. A red LED on the chargers illuminates when they are in the quick charge mode. A green LED illuminates to indicate they are in the trickle charge mode.

The two chargers are distinguished from each other by their power configuration: the CSA4(AB) requires 120 VAC, 50/60 Hz; the CSA4(AB)SA requires 230 VAC, 50/60 Hz. Their dimensions are 3 3/4 wide by 4 1/8 deep, by 4 1/4 high inches.

OPERATION

Connect a 120 VAC power source to the CSA4(AB), or a 230 VAC power source to the CSA4(AB)SA. Insert the BP11 battery pack into the charger or insert the handheld transceiver with the battery pack connected to it into the charger. Be sure that the battery contacts touch the charger contacts. The battery pack should be fully charged in about one hour, but may be left in the charger indefinitely.

Do not charge the battery pack outside of the operating temperature range of the CSA4(AB), CSA4(AB)SA, which is 10°C to 40°C (50°F to 104°F). Do not operate a transceiver while it is being charged in the CSA4(AB) or CSA4(AB)SA.

REPLACEMENT PARTS

| <u>REFERENCE DESIGNATOR</u> | <u>DESCRIPTION</u> | <u>SCC PART NUMBER</u> |
|---------------------------------|---------------------------------|------------------------|
| Q1,Q3,Q4,Q5 | Transistor, 2SC536E | HT305361EO |
| Q2,Q6 | Transistor, 2SA608E | HT106081OR |
| - - | CSA4(AB) Transformer, 120 VAC | TS1481314R |
| - - | CSA4(AB)SA Transformer, 230 VAC | TS1481315R |

MP635G MICROPHONE

| REFERENCE DESIGNATOR | DESCRIPTION | SCC PART NO. |
|-------------------------|-------------------------------------|-----------------|
| <u>ELECTRICAL:</u> | | |
| C001 | 10 uF, 25 V Electrolytic Capacitor | EA10602530 |
| C002 | 4.7 uF, 25 V Electrolytic Capacitor | EA47502530 |
| E001 | 16 ohm Speaker | QK00508020 |
| J001 | 6-pin Plug | YP10002240 |
| J002,J003 | 2-pin Terminal | YL01020310 |
| N001 | Microphone Element | MS40000020 |
| S001 | Switch | SM01020210 |
| Y001 | Connective Cord | YB02000140 |
| <u>MECHANICAL:</u> | | |
| 001B | Case | 010C064010 |
| 002B | Nameplate | 010C203210 |
| 003B | Sheet | 010C107020 |
| 004B | Holder | 010C271010 |
| 005B | Clamp | 010C005010 |
| 006B | Screw | 51380205P0 |
| 011B | Case | 010C064020 |
| 012B | Click | 010C062400 |
| 014B | Clutch | 010C061010 |
| 015B | Spring | 010C115010 |
| 016B | Shaft | 010C112010 |
| 017B | Washer | 54020401E0 |
| 021B | Hanger | 010C155010 |
| 023B | Shaft | 010C112020 |
| 024B | Ring | 64001500R0 |
| 031B | Button | 010C270010 |
| 032B | Spring | 010C115040 |
| 033B | Screw | 51382306P0 |
| 036B | Screw | 51382306P0 |
| 037B | Washer | 54052600R0 |
| 038B | Nail | 58000107R0 |
| 039B | Protector | 3512269020 |
| 040B | Buffer | 010C056010 |
| 041B | Screw | 51380325K0 |
| 042B | Screw | 51380320K0 |

TN15 TONE BOARD

| REFERENCE DESIGNATOR | VALUE | TYPE | SCC PART NO. | P.C. BOARD LOCATION |
|---|-----------------|--------------|-----------------|---------------------------|
| <u>CAPACITORS:</u> | | | | |
| C101,C111,C112, C113,C114,C121 | 1 uF, 50 V | Electrolytic | EJ10505010 | - |
| C102,C104,C105, C109,C110 | 10 uF, 16 V | Electrolytic | EJ10601610 | - |
| C108 | 1 uF, 25 V | Electrolytic | EV10502560 | - |
| C116,C117 | 22 uF, 16 V | Electrolytic | EV22601660 | - |
| <u>SEMICONDUCTORS:</u> | | | | |
| Q101 | AFH24F300 | I.C. | HC10010230 | - |
| Q102 | MC4138 | I.C. | HC10038060 | - |
| Q103,Q106,Q108, Q109,Q112,Q113 | 2SC536 | Transistor | HT305360F0 | - |
| Q104,Q105 | 1S1555 | Diode | HD20011050 | - |
| Q107 | HZ6L | Zener Diode | HD30008010 | - |
| Q110 | SDT100 | Thermistor | HH00007030 | - |
| <u>RESISTORS:</u> | | | | |
| R106,R107 | 1M ohm, 1/8 W | Chip | RI05105180 | - |
| R108 | 270K ohm, 1/8 W | Chip | RI05274180 | - |
| R109 | 150K ohm, 1/8 W | Chip | RI05154180 | - |
| R110,R122 | 10K ohm | Trimming | RA01030500 | - |
| R124 | 1M ohm | Trimming | RA01050100 | - |
| Resistors not listed are standard, fixed carbon composition, $\pm 5\%$, 1/8 watt. The resistance values, in ohms, are indicated on the schematic diagram. | | | | |
| <u>MISCELLANEOUS ELECTRICAL:</u> | | | | |
| J001 | 9-pin | Plug | YP10001060 | - |
| J101 | - | Jumper | 75060251P0 | - |
| <u>MECHANICAL:</u> | | | | |
| 101K | - | Shield | 008C109012 | - |
| 102K | - | Screw | 51302606B0 | - |

CSA4 SERIES RAPID CHARGER

| REFERENCE DESIGNATOR | DESCRIPTION | SCC PART NO. |
|---------------------------|------------------------------------|-----------------|
| <u>ELECTRICAL:</u> | | |
| C1 | 10 uF, 25 V Electrolytic Capacitor | EA10602530 |
| D1,D2,D3 | Diode (DS442) | HD2001703R |
| DB | Bridge (DS185E) | HE2000103R |
| DZ | Zener Diode (GZA6.2Y) | HD3000203R |
| L1 | L.E.D. (SLP136B) | HI1001703R |
| L2 | L.E.D. (SLP236B) | HI1001803R |
| Q1,Q3,Q4,Q5 | Transistor (2SC536E) | HT305361E0 |
| Q2,Q6 | Transistor (2SA608E) | HT1060810R |
| R1,R5,R ₁ ,R8 | 1K ohm, 1/4 W Resistor | GD05102140 |
| R2,R3,R9,R10,R13 | 4.7K ohm, 1/4 W Resistor | GD05472140 |
| R4,R7,R11,R ₁₂ | 2.2K ohm, 1/4 W Resistor | GD05222140 |
| R14 | 470 ohm, 1/4 W Resistor | GD05471140 |
| S1 | Thyristor (CV12B) | HB0000101R |
| T (CSA4) | Transformer (120 VAC) | TS1481312R |
| T (CSA4SA) | Transformer (230 VAC) | TS1481313R |
| <u>MECHANICAL:</u> | | |
| 0001 | Case | 2062064010 |
| 0002 | Holder | 2062271010 |
| 0003 | Holder | 2062271020 |
| 0004 | Ltd | 2062257010 |
| 0005 | Terminal | 2062123010 |
| 0006 | Spring | 2062115010 |
| 0007 | Bushing | 2062259010 |
| 0008 | Heatsink | 2062267010 |
| 0009 (CSA4) | Label | 2062861010 |
| 0009 (CSA4SA) | Label | 2062861020 |
| 0010 | Leg | 2062057010 |
| 0011 | Screw | 51300306U0 |
| 0012 | Screw | 51300308U0 |
| 0013 | Screw | 51300408B0 |
| 0014 | Ring | 64001500R0 |
| | Plug Adaptor (CSA4SA) | YJ0400086R |

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| REFERENCE DESIGNATOR | DESCRIPTION | SCC PART NO. | EXPLODED PARTS VIEW LOCATION |
|-------------------------|-------------|-----------------|------------------------------------|
| 011F | Shield | 109C109022 | C6 |
| 012F | Insulator | 109C120040 | C7 |
| 013F | Shield | 109C109030 | C6 |
| 014F | Insulator | 109C120050 | C6 |
| 015F | Shield | 109C109013 | C5 |
| 016F | Insulator | 109C120012 | C6 |
| 017F | Label | 4733861030 | C4 |
| 018F | Label | 109C861020 | C4 |

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| REFERENCE DESIGNATOR | DESCRIPTION | SCC PART NO. | EXPLODED PARTS VIEW LOCATION |
|-------------------------|-------------|-----------------|------------------------------------|
| 001B | Frame | 109C401012 | B4 |
| 00 B | Escutcheon | 109C063012 | A5 |
| 005B | Knob | 4736154060 | A5 |
| 006B | Cover | 109C053023 | A6 |
| 007B | Nut | 53228059E0 | B5 |
| 008B | Nut | 53228119E0 | A4 |
| 009B | Nut | 53226019E0 | A5 |
| 010B | Nut | 53227069E0 | A5 |
| 011B | Lug | 62100019E0 | B5 |
| 012B | Knob | 109C154012 | A6 |
| 013B | Screw | 51692603Q0 | A6 |
| 015B | Knob | 3782154043 | A7 |
| 016B | Screw | 51692603Q0 | A7 |
| 020B | Button | 109C270014 | B3 |
| 021B | Spring | 109C115012 | B3 |
| 023B | Label | 3729861043 | B4 |
| 031B | Contact | 109C123010 | B3 |
| 032B | Insulator | 109C120022 | B3 |
| 033B | Screw | 51062603E0 | B4 |
| 034B | Screw | 50062604B0 | B3 |
| 035B | Washer | 59260505P0 | B4 |
| 037B | Cover | 109C053030 | B4 |
| 038 | Washer | 59046502G9 | C4 |
| 040B | Stopper | 109C114010 | B5 |
| 041B | Screw | 51040205E0 | C4 |
| 043B | Nameplate | 109C265024 | C3 |
| 050B | Case | 109C064014 | B8 |
| 051B | Nameplate | 109C203012 | A8 |
| 052B | Bracket | 109C160012 | A8 |
| 053B | Screw | 51042605E0 | A8 |
| 054B | Bushing | 109C259010 | B7 |
| 055B | Label | 109C861012 | B5 |
| 056B | Packing | 109C277010 | B7 |
| 057B | Grill | 3512269020 | A7 |
| 061B | Screw | 51142605C0 | A5,B5 |
| 062B | Screw | 51102608E0 | C5,C6 |
| 065B | Case | 109C064024 | A1 |
| 066B | Packing | 109C277022 | A1 |
| 068B | Screw | 51063019L9 | A1 |
| 069B | Screw | 51142605C0 | A5,B6 |
| 001F | Screw | 51282606B0 | B8,C8 |
| 003F | Bolt | 52730305S9 | C6 |
| 006F | Shield | 3621109032 | C8 |
| 007 | Core | 3621161012 | C8 |
| 009 | Lug | 62261240W0 | B8,C8 |

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| REFERENCE DESIGNATOR | VALUE | TYPE | SCC PART NO. | P.C. BOARD LOCATION |
|---|-------------|-------------------|-----------------|---------------------------|
| R247,R248 | 39 ohm, 2 W | Fixed Metal Oxide | GJ05390020 | F6,F6 |
| Resistors not listed are standard, fixed carbon composition, $\pm 5\%$, 1/8 watt. The resistance values, in ohms, are indicated on the schematic diagram. | | | | |
| <u>MISCELLANEOUS ELECTRICAL:</u> | | | | |
| E001 | 8 ohm | Speaker | QK00508010 | G1 |
| F101 | 21.4 MHz | Crystal | XU721400M5 | E6 |
| F102,F103 | CFU455E | Ceramic Filter | FG455304E0 | E4,D4 |
| F104 | CFA455S | Filter | FH455301E0 | C4 |
| F201 | - | Ferrite Core | FC90050010 | E7 |
| J002 | - | Jack | YJ01001020 | G2 |
| J003 | 6-pin | Jack | YJ10001600 | E. |
| J004 | 9-pin | Jack | YJ10000520 | B1 |
| J005 | 9-pin | Plug | YP10001060 | A1 |
| J006 | - | Jack | YJ01001020 | A6 |
| J501 | BNC | Jack | YJ10001620 | G5 |
| N001 | - | Microphone | MS50000100 | G1 |
| S001 | - | Switch | SM01020210 | D1 |
| S301 | - | Switch | SR02060120 | A8 |
| X101 | 20.945 MHz | Crystal | XZ42094505 | D5 |
| | or | | | |
| | 21.855 MHz | Crystal | XZ42185505 | D5 |

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| REFERENCE DESIGNATOR | VALUE | TYPE | SCC PART NO. | P.C. BOARD LOCATION |
|--|-------------------------------|--------------|-----------------|------------------------------|
| Q103 | 2SC460B | Transistor | HT304601B0 | E5 |
| Q104,Q105,Q114, Q115,Q116,Q120, Q122 | 2SC536 | Transistor | HT305360F0 | E5,E5,C4, B4,B4,B5; B4 |
| Q106 | H8D1152E | I.C. | HC10012230 | D4 |
| Q107,Q108,Q109, Q117,Q118 | OA99 | Diode | HD10005020 | C4,C4,D4, B4,B4 |
| Q110 | UPC575C2 | I.C. | HD10037060 | B5 |
| Q111 | 2SC535C | Transistor | HT305351C0 | E4 |
| Q112 | 2SC2407 | Transistor | HT32407100 | E4 |
| Q113 | WZ071 | Zener Diode | HD30023090 | C4 |
| Q119,Q125,Q126 | ISI555 | Diode | HD20011050 | B5,F5,F5 |
| Q201,Q202 | 2SC460B | Transistor | HT304601B0 | C6,D6 |
| Q203,Q204 | IS2689 (F1,F3) | Varicap | HD40011090 | D6,D5 |
| Q203,Q204 | IS2689A (F4,F5) | Varicap | HD40016090 | D6,D5 |
| Q205,Q206,Q208 | 2SC2347 | Transistor | HT32347100 | D5,D6,D7 |
| Q207 | HZ6L | Zener Diode | HD30008010 | D5 |
| Q209 | 2SC2644 | Transistor | HT32644000 | E6 |
| Q210 | 2SC2494 | Transistor | HT32494100 | E7 |
| Q211 | 2SC2283 | Transistor | HT32283100 | F7 |
| Q212 | MI303 | Diode | HD20005200 | G5 |
| Q213 | MI301 | Diode | HD20001200 | F5 |
| Q214 | H8D1219 | I.C. | HC10004230 | D4 |
| Q215,Q223 | OA99 | Diode | HD10005020 | C5,C4 |
| Q216 | 2SA608 | Transistor | HT106082A0 | C5 |
| Q217 | 2SD571 | Transistor | HT40571100 | C5 |
| Q218 | WZ100 | Zener Diode | HD30072090 | C4 |
| Q219,Q220,Q222 | ISI555 | Diode | HD20011050 | C5,C5,E7 |
| Q221 | 2SC536 | Transistor | HT305360F0 | C5 |
| Q401 | LN222RP | L.E.D. | HI10025020 | F2 |
| Q402 | WZ065 | Zener Diode | HD30036090 | F2 |
| RESISTORS: | | | | |
| R001 | 20K ohm | Variable | RB12030020 | A4 |
| R002 | 10K ohm | Variable | RB11030070 | D1 |
| R004 | 10K ohm | Variable | RA01030520 | D2 |
| R104 | 220K ohm, 1/8 W (F4,F5) | Tip Resistor | RI05224180 | A8 |
| R141 | 10K ohm, 1/4 W | Fixed Carbon | GD05103140 | C4 |
| R151,R162,R163, R164,R165,R166 | 3.3K ohm, 1.8 W (F3,F4,F5) | Tip Resistor | RI05332180 | C7,C7,C7, C8,C8,C8 |
| R211,R214 | 150 ohm, 1/4 W | Fixed Carbon | GD05151140 | D5,D6 |
| R213,R216 | 100 ohm, 1/4 W | Fixed Carbon | GD05101140 | C5,D7 |
| R219 | 15 ohm, 1/4 W | Fixed Carbon | GD05150140 | E7 |
| R220 | 270 ohm, 1/4 W | Fixed Carbon | GD05271140 | E6 |
| R233 | 4.7K ohm | Trimming | RA04720100 | D4 |

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| REFERENCE DESIGNATOR | VALUE | TYPE | SCC PART NO. | P.C. BOARD LOCATION |
|-----------------------------------|------------------------|--------------|-----------------|---------------------------|
| L103 | (F3) | Antenna Coil | LA70260090 | F4 |
| L103 | (F4) | Antenna Coil | LA70260130 | F4 |
| L103 | (F5) | Antenna Coil | LA70260160 | F4 |
| L105,L114 | 0.3 uH | Choke Coil | LC13010020 | F4,F5 |
| L107 | - | I.F.T. | LI70280030 | F6 |
| L108 | - | I.F.T. | LI55016190 | E5 |
| L109 | - | I.F.T. | LI55016200 | E4 |
| L110,L116 | 1 mH | Choke Coil | LC11050040 | F4,C4 |
| L111 | - | Doubler Coil | LW55016080 | E4 |
| L112 | - | Doubler Coil | LW55016010 | E4 |
| L113 | - | Doubler Coil | LW55016020 | E4 |
| L115 | (F1) | Antenna Coil | LA70260200 | E5 |
| L115 | (F3) | Antenna Coil | LA70260100 | E5 |
| L115 | (F4) | Antenna Coil | LA70260140 | E5 |
| L115 | (F5) | Antenna Coil | LA70260170 | E5 |
| L117 | 390 uH | Choke Coil | LC13940010 | B4 |
| L121,L122,L123, L124,L125,L126 | 0.82 uH (F1) | Choke Coil | LC18210030 | C7,C7,C7, D7,D7,D7 |
| L121,L122,L123, L124,L125,L126 | 0.68 uH (F3,F4,F5) | Choke Coil | LC16810070 | C7,C7,C7, D7,D7,D7 |
| L201 | 10 uH | Choke Coil | LC11030020 | D5 |
| L202,L203 | - | Antenna Coil | LA55016050 | D6,D5 |
| L204,L205 | - | Doubler Coil | LW55016030 | D5,D5 |
| L206,L207,L209 | - | Doubler Coil | LW55016020 | D6,D6,E7 |
| L208 | - | Doubler Coil | LW55016050 | D7 |
| L210 | 0.26 uH | Choke Coil | LC12610010 | E6 |
| L211 | 3 1/4 T (F1) | Choke Coil | LC15000220 | E6 |
| L211 | 2 3/4 T (F3,F4, F5) | Choke Coil | LC15000210 | E6 |
| L212 | 2 1/4 T (F1) | Choke Coil | LC13300020 | E7 |
| L212 | 1 3/4 T (F3,F4, F5) | Choke Coil | LC13300010 | E7 |
| L213,L215 | - | Twist Coil | LM42518010 | F6,F7 |
| L214 | 0.2 uH | Choke Coil | LC12010012 | F7 |
| L216 | 0.16 uH | Choke Coil | LC11610010 | F5 |
| L217,L218,L219 | 0.034 uH | Choke Coil | LC13400010 | F5,G5,F4 |
| L220 | 27 mH | Choke Coil | LC22760010 | D4 |
| L221 | 0.3 uH | Choke Coil | LC13010022 | E6 |
| L501 | 0.028 uH | Choke Coil | LC12800010 | G4 |
| SEMICONDUCTORS: | | | | |
| Q001 | 10D2 | Diode | HD20001100 | A5 |
| Q002 | 0A99 | Diode | HD10005020 | D1 |
| Q003 | - | Thermistor | HH00007030 | A8 |
| Q101 | 3SK48A | F.E.T. | HF400481A0 | F4 |
| Q102 | 2SK48 | F.E.T. | HF40048100 | F5 |

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| REFERENCE DESIGNATOR | VALUE | TYPE | SCC PART NO. | P.C. BOARD LOCATION |
|-----------------------------------|------------------|--------------|-----------------|---------------------------|
| C229 | 12 pF (F3,F4,F5) | Ceramic | DD15120330 | E7 |
| C230 | 22 pF (F1,F3,F4) | Ceramic | DD15220330 | E7 |
| C230 | 18 pF (F5) | Ceramic | DD15180330 | E7 |
| C231,C233,C248, C294,C295 | 39 pF | Ceramic | DD15390360 | E6,E6,F6, D5,D6 |
| C234 | 0.01 uF | Ceramic | DK78103010 | E6 |
| C236 | 12 pF (F1) | Ceramic | DD15120300 | E6 |
| C236 | 10 pF (F3) | Ceramic | DD11100300 | E6 |
| C236 | 7 pF (F4) | Ceramic | DD11070300 | E6 |
| C236 | 6 pF (F5) | Ceramic | DD11060300 | E6 |
| C238 | 33 pF (F1) | Ceramic | DD15330300 | E7 |
| C238 | 30 pF (F3) | Ceramic | DD15300300 | E7 |
| C238 | 27 pF (F4,F5) | Ceramic | DD15270300 | E7 |
| C239 | 5 pF (F1,F3,F4) | Ceramic | DD10050300 | E7 |
| C239 | 4 pF (F5) | Ceramic | DD10040300 | E7 |
| C240 | 22 pF (F1,F3,F4) | Film | DF95220500 | E7 |
| C241 | 22 pF | Chip Mica | DF95220500 | E6 |
| C244,C249,C251 | 10 pF | Trimming | CT11000020 | F6,F6,F6 |
| C245,C289 | 0.001 uF | Ceramic | DK18102300 | E6,E7 |
| C246 | 10 pF | Ceramic | DD11100300 | F7 |
| C250 | 5 pF (F1,F3) | Ceramic | DD10050300 | G6 |
| C252,C253 | 330 pF | Ceramic | DK16331300 | F5,F5 |
| C254 | 51 pF | Ceramic | DL15510370 | G5 |
| C255,C256 | 5 pF | Ceramic | DD10050300 | F5,F4 |
| C261 | 0.001 uF | Ceramic | DK46102300 | E7 |
| C267,C268,C269, C270,C271,C272 | 20 pF | Trimming | CT12000110 | B6,B6,B6, B7,B7,B7 |
| C273 | 0.15 uF | Ceramic | DK26154010 | D4 |
| C274,C276 | 1 uF, 50 V | Electrolytic | EJ10505010 | D5,D4 |
| C275 | 0.22 uF, 50 V | Electrolytic | EJ22405010 | D4 |
| C277,C279 | 0.47 uF, 50 V | Electrolytic | EJ47405010 | D4,C4 |
| C284,C285,C291, C292 | 470 pF | Ceramic | DD45471370 | C4,C4,D4, D4 |
| C287 | 1 uF, 25 V | Electrolytic | EV10502560 | C4 |
| C293 | 0.001 uF | Ceramic | DK18102300 | C5 |
| C296 | 470 pF | Ceramic | DK16471300 | C4 |
| C401 | 10 uF, 16 V | Electrolytic | EJ10601610 | F1 |
| C501 | 5 pF | Ceramic | DD10050300 | G4 |
| <u>INDUCTORS:</u> | | | | |
| L001 | 1 uH | Choke Coil | LC11020020 | E2 |
| L101 | (F1) | Antenna Coil | LA70260180 | F4 |
| L101 | (F3) | Antenna Coil | LA70260080 | F4 |
| L101 | (F4) | Antenna Coil | LA70260120 | F4 |
| L101 | (F5) | Antenna Coil | LA70260150 | F4 |
| L103 | (F1) | Antenna Coil | LA70260190 | F4 |

734L ELECTRICAL

| REFERENCE DESIGNATOR | VALUE | TYPE | SCC PART NO. | P.C. BOARD LOCATION |
|---|-------------------|---------------|-----------------|------------------------------|
| C169 | 0.0022 uF | Semiconductor | DS17222010 | B4 |
| C172 | 22 uF, 10 V | Electrolytic | EV22601060 | B5 |
| C174 | 0.001 uF | Ceramic | DK46102300 | B5 |
| C175,C179 | 47 uF, 16 V | Electrolytic | EA47601630 | B5,C4 |
| C177 | 100 uF, 10 V | Electrolytic | EA10701030 | C5 |
| C178 | 0.22 uF | Ceramic | DK27224010 | 35 |
| C181,C182 | 0.33 uF | Ceramic | DK26333010 | B4,B4 |
| C183 | 1 uF, 50 V | Electrolytic | EJ10505010 | B5 |
| C185 | 33 uF, 10 V | Electrolytic | EV33601060 | C5 |
| C188,C190 | 30 pF | Ceramic | DD45300300 | E4,E4 |
| C189 | 56 pF | Ceramic | DD45560300 | E4 |
| C201 | 51 pF | Ceramic | DD15510300 | C6 |
| C202 | 75 pF | Ceramic | DD15750300 | C6 |
| C203,C207,C213, C280,C283 | 0.01 uF | Semiconductor | DS17103010 | C6,C5,D5, C4,D4 |
| C204,C206 | 24 pF | Ceramic | DD15240360 | C6,C6 |
| C205 | 33 pF | Ceramic | DD15330300 | C6 |
| C208 | 10 pF (F1) | Ceramic | DD11100300 | D6 |
| C208 | 7 pF (F3,F4,F5) | Ceramic | DD11070300 | D6 |
| C209,C211 | 0.001 uF | Ceramic | DA17102010 | D6,D5 |
| C210,C216,C235 | 3 pF (F1) | Ceramic | DD10030300 | D5,D6,E6 |
| C210,C216,C235 | 2 pF (F3,F4,F5) | Ceramic | DD10020300 | D5,D6,E6 |
| C212 | 15 pF | Ceramic | DD15150300 | D5 |
| C214 | 100 pF (F1) | Ceramic | DD45101330 | D5 |
| C214 | 82 pF (F3) | Ceramic | DD45820220 | D5 |
| C214 | 82 pF (F4) | Ceramic | DD45820330 | D5 |
| C214 | 68 pF (F5) | Ceramic | DD45680330 | D5 |
| C215,C221,C226 | 0.0047 uF | Semiconductor | DS17472010 | D5,E6,D7 |
| C217,C243 | 180 pF (F1) | Ceramic | DD45181330 | D6,D6 |
| C217,C243 | 150 pF (F3,F4,F5) | Ceramic | DD45151330 | D6,D6 |
| C218,C219,C225, C258,C282,C290 | 0.001 uF | Ceramic | DK16102300 | D6,D5,D7, F5,C4,C5 |
| C220,C232,C242 C247,C278,C281, C286 | 10 uF, 16 V | Electrolytic | EJ10601610 | D5,E6,E6, G7,C4,C5, D5 |
| C222,C224 | 47 pF (F1) | Ceramic | DD15470330 | D6,D7 |
| C222,C224 | 39 pF (F3) | Ceramic | DD15390330 | D6,D7 |
| C222,C224 | 33 pF (F4,F5) | Ceramic | DD15330330 | D6,D7 |
| C223 | 2 pF (F1) | Ceramic | DD10020300 | D6 |
| C223 | 1.5 pF (F3,F4,F5) | Ceramic | DD10015300 | D6 |
| C227,C262,C263 | 10 pF (F1) | Ceramic | DD11100300 | E7 |
| C227 | 8 pF (F3) | Ceramic | DD11080300 | E7 |
| C227 | 6 pF (F4,F5) | Ceramic | DD11060300 | E7 |
| C228 | 1.5 pF (F1) | Ceramic | DD10015300 | E7 |
| C228,C237 | 1 pF (F3,F4,F5) | Ceramic | DD10010300 | D7,E6 |
| C229 | 18 pF (F1) | Ceramic | DD15180330 | E7 |

734L ELECTRICAL

| REFERENCE DESIGNATOR | VALUE | TYPE | SCC PART NO. | P.C. BOARD LOCATION |
|---|-------------------|---------------|-----------------|------------------------------|
| C169 | 0.0022 uF | Semiconductor | DS17222010 | B4 |
| C172 | 22 uF, 10 V | Electrolytic | EV22601060 | B5 |
| C174 | 0.001 uF | Ceramic | DK46102300 | B5 |
| C175,C179 | 47 uF, 16 V | Electrolytic | EA47601630 | B5,C4 |
| C177 | 100 uF, 10 V | Electrolytic | EA10701030 | C5 |
| C178 | 0.22 uF | Ceramic | DK27224010 | B5 |
| C181,C182 | 0.33 uF | Ceramic | DK26333010 | B4,B4 |
| C183 | 1 uF, 50 V | Electrolytic | EJ10505010 | B5 |
| C185 | 33 uF, 10 V | Electrolytic | EV33601060 | C5 |
| C188,C190 | 30 pF | Ceramic | DD45300300 | E4,E4 |
| C189 | 56 pF | Ceramic | DD45560300 | E4 |
| C201 | 51 pF | Ceramic | DD15510300 | C6 |
| C202 | 75 pF | Ceramic | DD15750300 | C6 |
| C203,C207,C213, C280,C283 | 0.01 uF | Semiconductor | DS17103010 | C6,C5,D5, C4,D4 |
| C204,C206 | 24 pF | Ceramic | DD15240360 | C6,C6 |
| C205 | 33 pF | Ceramic | DD15330300 | C6 |
| C208 | 10 pF (F1) | Ceramic | DD11100300 | D6 |
| C208 | 7 pF (F3,F4,F5) | Ceramic | DD11070300 | D6 |
| C209,C211 | 0.001 uF | Ceramic | DA17102010 | D6,D5 |
| C210,C216,C235 | 3 pF (F1) | Ceramic | DD10030300 | D5, 6,E6 |
| C210,C216,C235 | 2 pF (F3,F4,F5) | Ceramic | DD10020300 | D5,D6,E6 |
| C212 | 15 pF | Ceramic | DD15150300 | D5 |
| C214 | 100 pF (F1) | Ceramic | DD45101330 | D5 |
| C214 | 82 pF (F3) | Ceramic | DD45820220 | D5 |
| C214 | 82 pF (F4) | Ceramic | DD45820330 | D5 |
| C214 | 68 pF (F5) | Ceramic | DD45680330 | D5 |
| C215,C221,C226 | 0.0047 uF | Semiconductor | DS17472010 | D5,E6,D7 |
| C217,C243 | 180 pF (F1) | Ceramic | DD45181330 | D6,D6 |
| C217,C243 | 150 pF (F3,F4,F5) | Ceramic | DD45151330 | D6,D6 |
| C218,C219,C225, C258,C282,C290 | 0.001 uF | Ceramic | DK16102300 | D6,D5,D7, F5,C4,C5 |
| C220,C232,C242 C247,C278,C281, C286 | 10 uF, 16 V | Electrolytic | EJ10601610 | D5,E6,E6, G7,C4,C5, D5 |
| C222,C224 | 47 pF (F1) | Ceramic | DD15470330 | D6,D7 |
| C222,C224 | 39 pF (F3) | Ceramic | DD15390330 | D6,D7 |
| C222,C224 | 33 pF (F4,F5) | Ceramic | DD15330330 | D6,D7 |
| C223 | 2 pF (F1) | Ceramic | DD10020300 | D6 |
| C223 | 1.5 pF (F3,F4,F5) | Ceramic | DD10015300 | D6 |
| C227,C262,C263 | 10 pF (F1) | Ceramic | DD11100300 | E7 |
| C227 | 8 pF (F3) | Ceramic | DD11080300 | E7 |
| C227 | 6 pF (F4,F5) | Ceramic | DD11060300 | E7 |
| C228 | 1.5 pF (F1) | Ceramic | DD10015300 | E7 |
| C228,C237 | 1 pF (F3,F4,F5) | Ceramic | DD10010300 | D7,E6 |
| C229 | 18 pF (F1) | Ceramic | DD15180330 | E7 |

734L ELECTRICAL

| REFERENCE DESIGNATOR | VALUE | TYPE | SCC PART NO. | P.C. BOARD LOCATION |
|---|-----------------|---------------|-----------------|---|
| C001,C004,C005, C006,C007,C008, C009,C010,C011, C012 | 0.001 uF | Ceramic | DK16102300 | A5,A5,A5, G1,G2,E1, E2,E2,G1, A4 |
| C002 | 470 pF | Ceramic | DK16471300 | G1 |
| C003 | 0.33 uF, 35 V | Electrolytic | EV33403560 | A2 |
| C101,C102,C104, C106,C109,C151, C187 | 39 pF | Ceramic | DD15390360 | F4,F4,F4, F4,F4,E5, F4 |
| C103,C176,C184 | 330 pF | Ceramic | DK16331300 | F4,B5,B4 |
| C105,C111,C119, C120,C186 | 0.001 uF | Ceramic | DK16102300 | F4,E5,C4, C4,B4 |
| C107 | 68 pF | Ceramic | DD45680330 | E5 |
| C108 | 0.022 uF | Semiconductor | DS17223010 | F5 |
| C110,C146,C152, C165 | 0.0047 uF | Semiconductor | DS17472010 | E6,E4,E4, B4 |
| C112 | 10 pF | Ceramic | DD11100300 | E5 |
| C113 | 62 pF | Ceramic | DD15620300 | E5 |
| C114,C115 | 100 pF | Ceramic | DD15101350 | E5,E5 |
| C116,C167 | 0.01 uF | Semiconductor | DS17103010 | E5,B4 |
| C117 | 470 pF | Ceramic | DK16471300 | D4 |
| C118,C153,C171 | 10 uF, 16 V | Electrolytic | EJ10601610 | D4,C4,B4 |
| C121 | 0.01 uF | Ceramic | DA17103010 | D4 |
| C122 | 100 pF | Ceramic | DD45101300 | D4 |
| C131,C132,C133, C134,C135,C136 | 5 pF (F1) | Ceramic | DD10050300 | C6,C6,C7, C6,D6,D6 |
| C131,C132,C133, C134,C135,C136 | 7 pF (F3,F4,F5) | Ceramic | DD11070300 | C6,C6,C7, C6,D6,D6 |
| C137,C138,C139, C140,C141,C142 | 20 pF | Trimming | CT12000110 | B6,C6,C7, C6,D6,D6 |
| C144 | 47 pF | Ceramic | DD15470360 | E3 |
| C145 | 100 pF | Ceramic | DD15101360 | E4 |
| C147 | 20 pF (F1) | Ceramic | DD15200300 | E4 |
| C147 | 13 pF (F3,F4) | Ceramic | DD15130300 | E4 |
| C147 | 11 pF (F5) | Ceramic | DD15110300 | E4 |
| C148 | 0.5 pF | Ceramic | DD10005370 | E4 |
| C149 | 18 pF (F1) | Ceramic | DD15180300 | F4 |
| C149 | 33 pF (F3,F4) | Ceramic | DD15330300 | F4 |
| C149 | 24 pF (F5) | Ceramic | DD15240300 | F4 |
| C150 | 43 pF (F1) | Ceramic | DD15430300 | F4 |
| C150 | 9 pF (F3,F4) | Ceramic | DD11090300 | F4 |
| C150 | 8 pF (F5) | Ceramic | DD11080300 | F4 |
| C161,C170,C180 | 0.1 uF | Ceramic | DK26104010 | C4,B4,A4 |
| C162 | 1 uF, 25 V | Electrolytic | EV10502560 | F5 |
| C162 | 0.0015 uF | Semiconductor | DS17152010 | C4 |
| C164 | 0.001 uF | Semiconductor | DS17102010 | B4 |
| C166 | 0.0027 uF | Semiconductor | DS17272010 | C4 |
| C168,C173 | 10 uF, 10 V | Electrolytic | EV10601060 | B4,B4 |

PARTS LISTS

GENERAL

The following parts lists include the significant mechanical parts and all the electrical parts of the transceiver, except certain common resistors. Also included are separate parts lists for the optional rapid charger (CSA4 Series), the tunable tone board (TN15), and the external speaker/ microphone (MP635G). The following information will be useful in interpreting data in the parts lists which are not self-explanatory.

REVISIONS

The parts lists in this manual are for the current build of the transceiver, as of the printing date. If a different part was used in a previous build details of the parts change are included in the revision table on the back of the applicable drawing, in the Drawings section, enabling you to determine the correct replacement part. (If the new part is the recommended replacement part for all units, the old part is not listed in the revision table.)

FREQUENCY SENSITIVE COMPONENTS

Components which vary in value according to frequency range are listed with all other parts. The appropriate frequency range (F3, F4, etc.) is included in the Value Column.

P.C. BOARD LOCATION

This guide references each electrical part to a corresponding location on the printed circuit board layout drawing. The P.C. board layout drawing is gridded for easy location. An asterisk (*) indicates the part is not shown on the printed circuit board drawing.

EXPLODED PARTS VIEW LOCATION

This guide references each mechanical part to a corresponding location on the exploded parts view drawing. The exploded parts view drawing is gridded for easy location.

ORDERING REPLACEMENT PARTS

To order replacement parts for your transceiver from the factory contact the SCC Parts Department at (213) 532-5300, ext. 248, or write to that department at P.O. Box 92151, Los Angeles, California, 90009.

When ordering replacement parts, you must give complete information including reference designator, description, value, part number, and the radio model number. Failure to provide sufficient information may result in SCC's inability to fill your parts orders.

Please note that crystals and crystal filters are not stocked by the Parts Department, but instead by the Frequency Management Department. When ordering crystals/crystal filters, contact Frequency Management at the number listed above, ext. 251, or write to them at the above address.

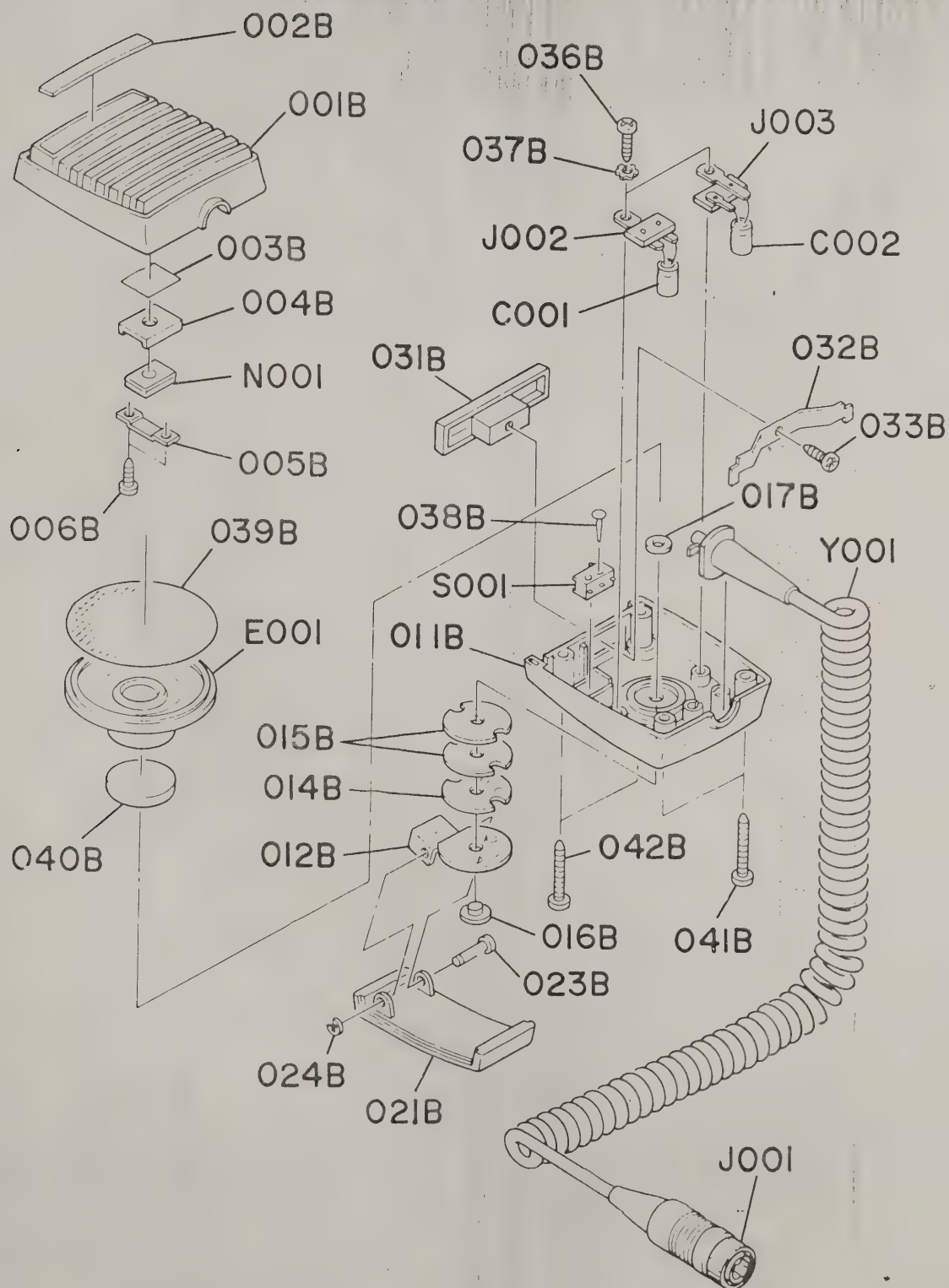
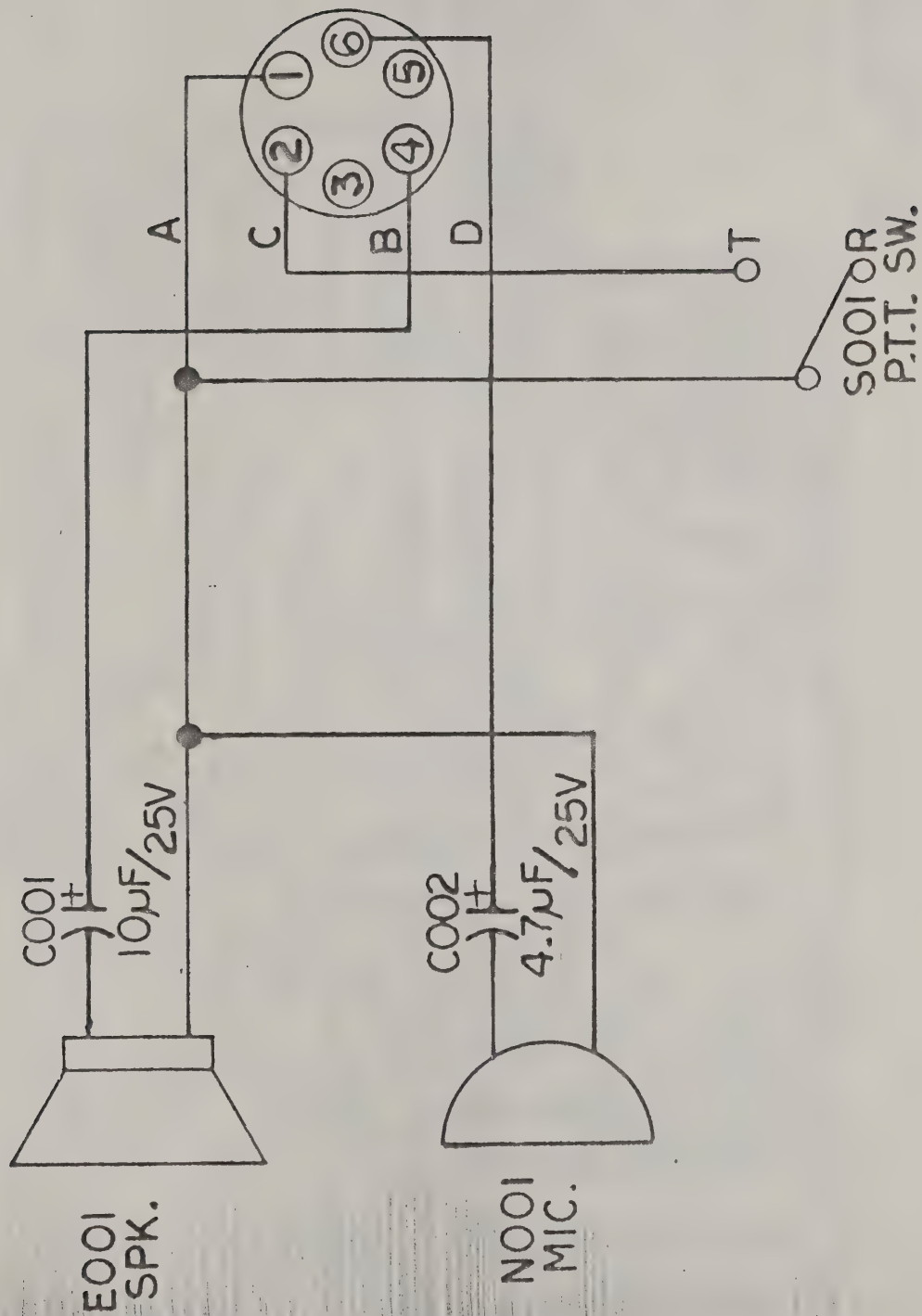


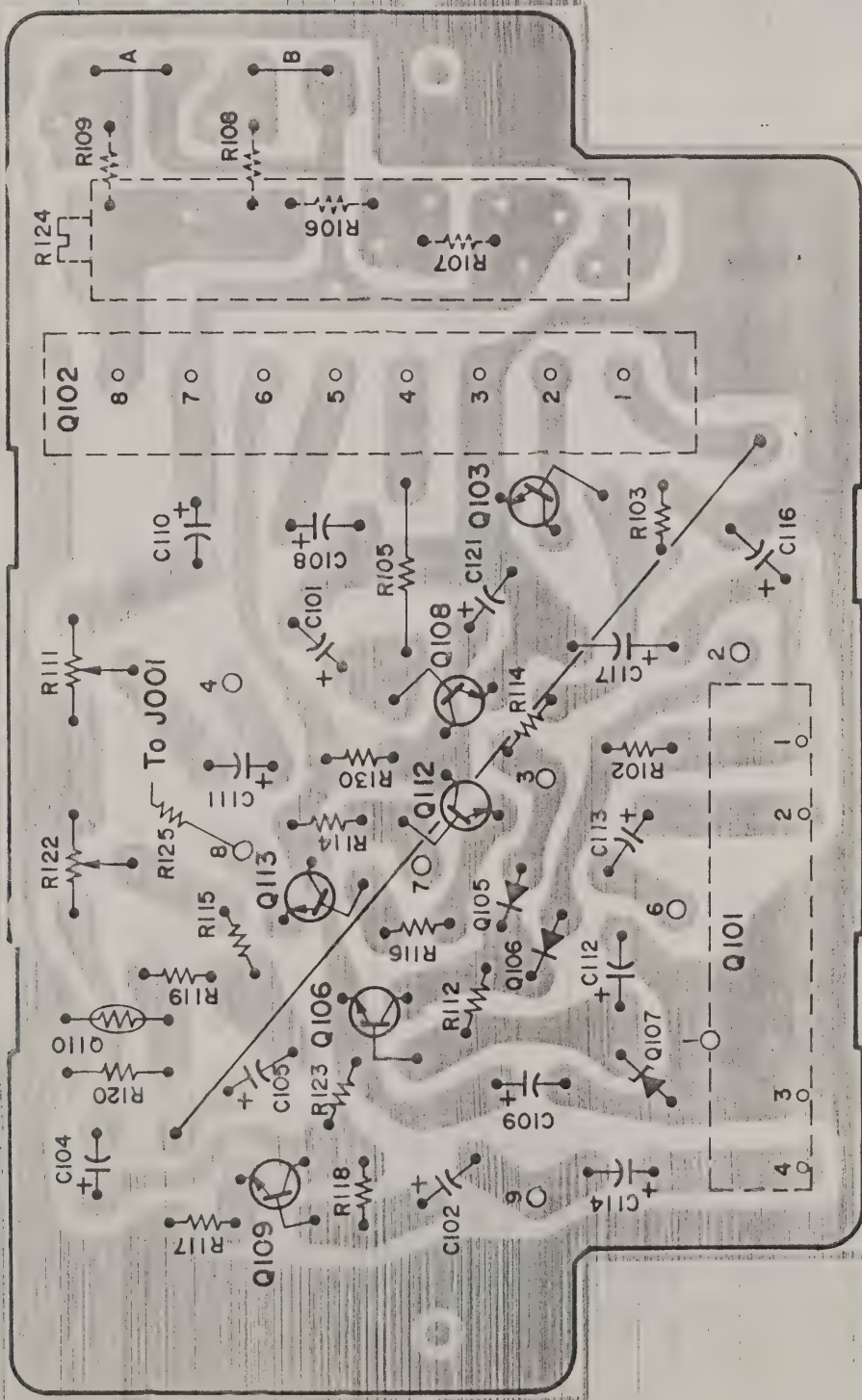
FIGURE 19. MP635G EXPLODED PARTS VIEW



MP635 010C49301
9-18-80

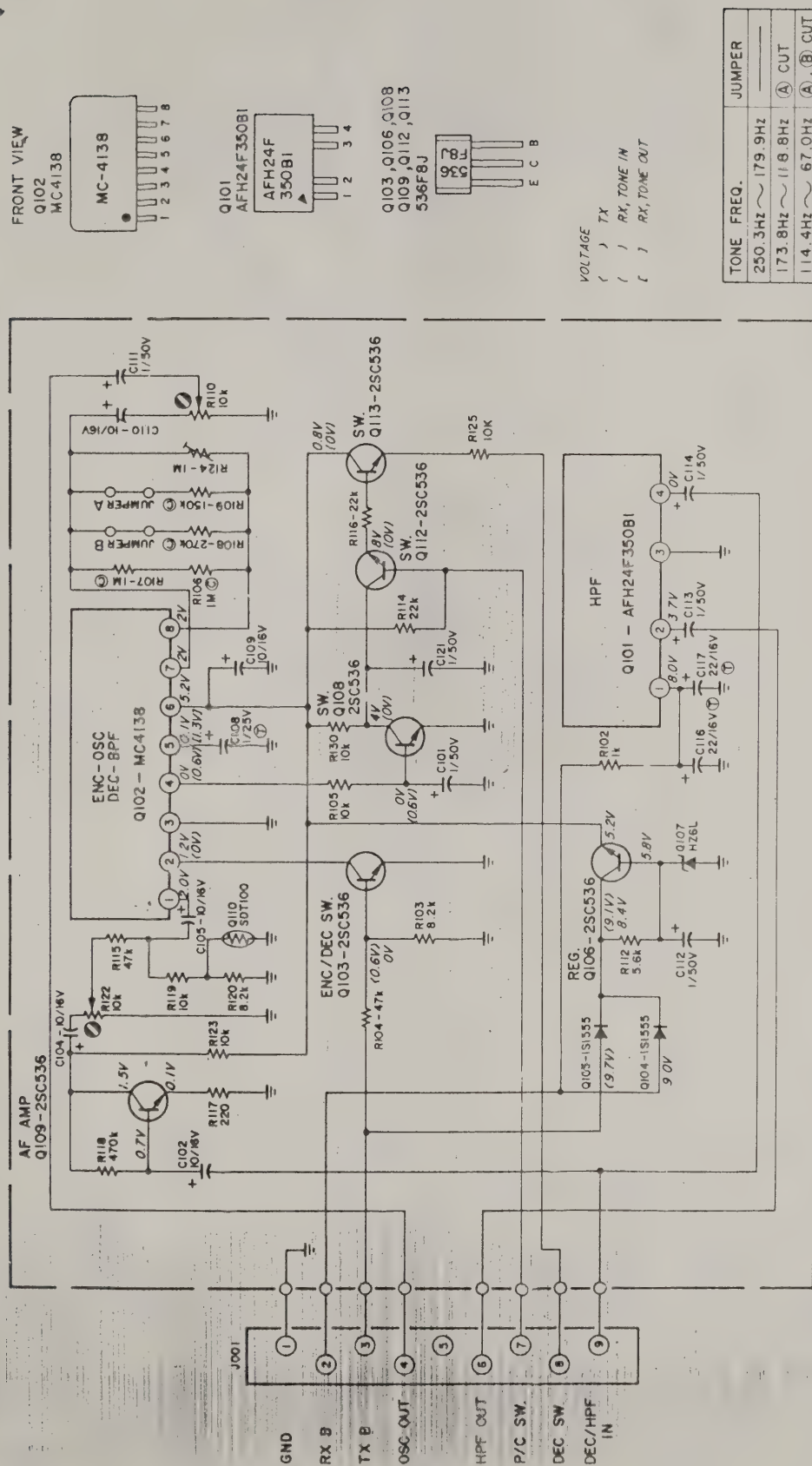
FIGURE 18. MP635G SCHEMATIC DIAGRAM

P100



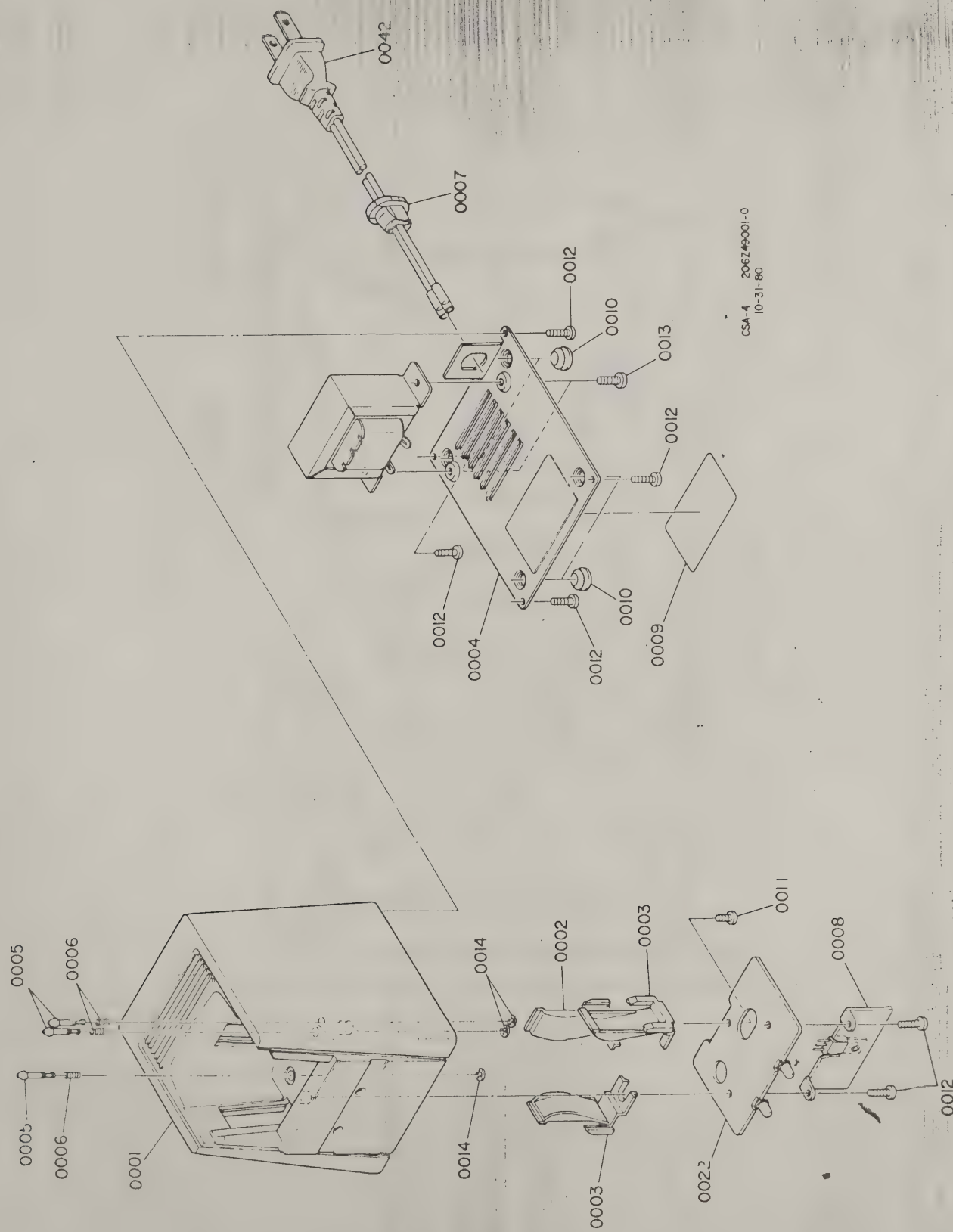
TN-15 00849601-0
9-19-80

FIGURE 17. TN15 P.C. BOARD LAYOUT
(FOIL SIDE WITH COMPONENT OVERLAY)



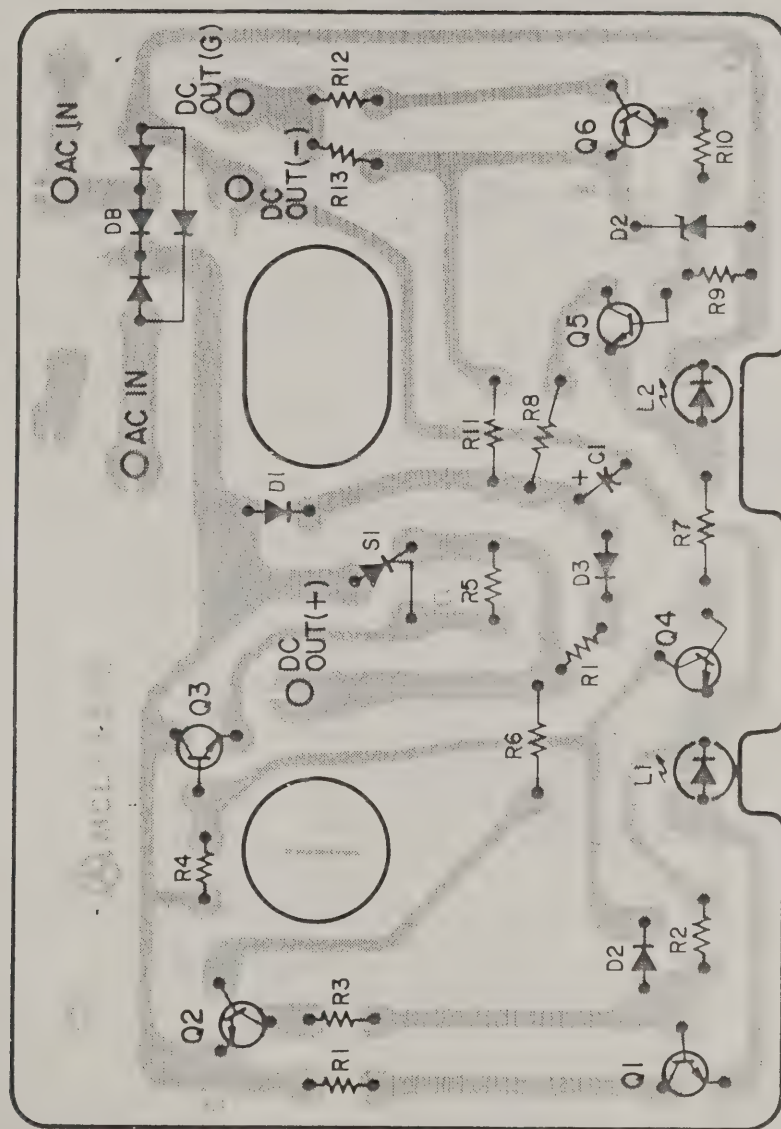
TN-15 008C49301-0
9-19-80

FIGURE 16. TN15 SCHEMATIC DIAGRAM



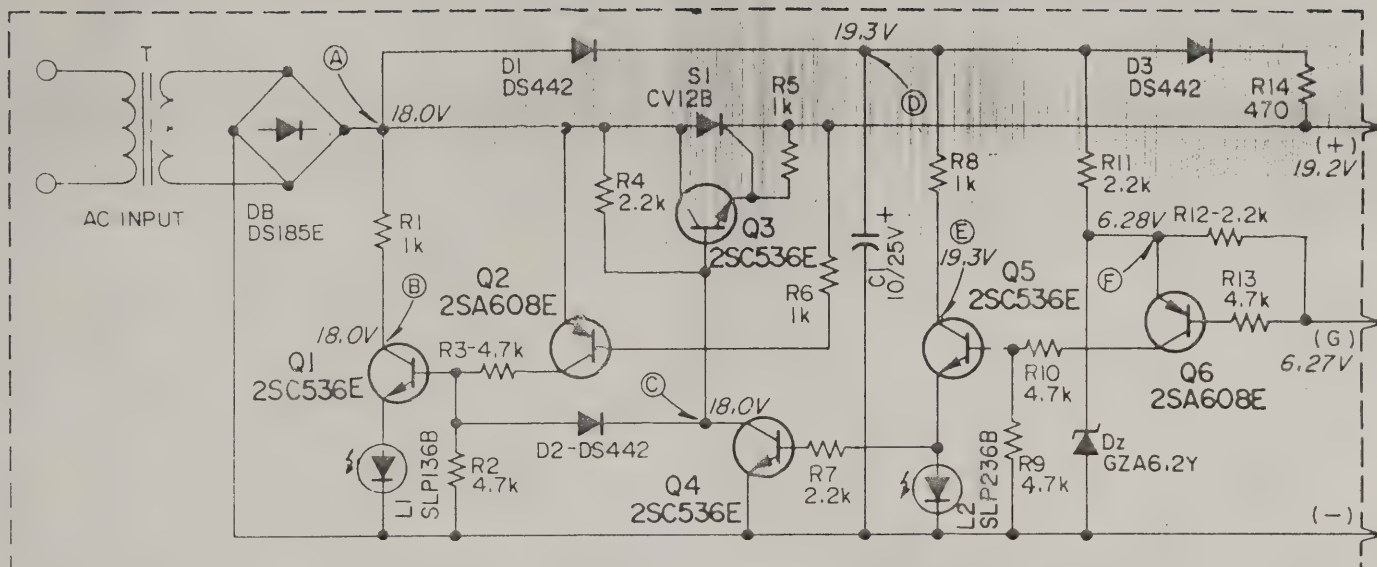
CSA-4 206Z49001-0
10-31-80

FIGURE 15. CSA4 SERIES EXPLODED PARTS VIEW

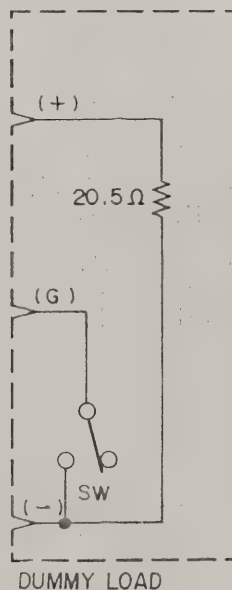
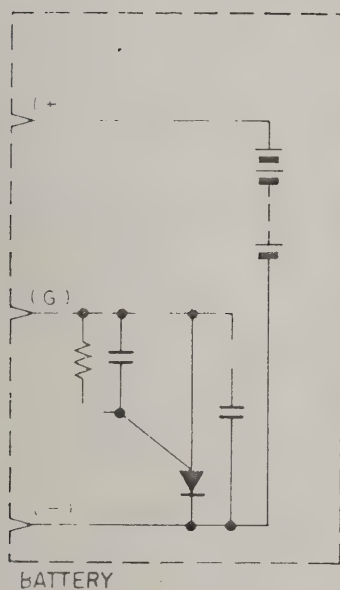


CSA-4 206249601-0
10-31-80

FIGURE 14. CSA4 SERIES P.C. BOARD LAYOUT
(FOIL SIDE WITH COMPONENT OVERLAY)



VOLTAGES MEASURED WITHOUT LOAD



CSA4 206249301-0
10-29-80

FIGURE 13. CSA4 SERIES
SCHEMATIC DIAGRAM

| TEST POINT | BATTERY LOAD | | DUMMY LOAD | |
|------------|--------------|---------|------------|---------|
| | RAPID | TRICKLE | RAPID | TRICKLE |
| (+) | 12.95V | 12.51V | 9.8V | 0.9V |
| (G) | 6.24V | 0.7V | 6.2V | 0V |
| A | 13.2V | 13.06V | 10.4V | 10.9V |
| B | 5.6V | 13.05V | 2.2V | 10.9V |
| C | 13.2V | 0.07V | 10.4V | 0.06V |
| D | 13.3V | 17.5V | 15.6V | 16.3V |
| E | 13.3V | 2.25V | 15.6V | 3.7V |
| F | 6.25V | 6.2V | 6.2V | 5.9V |

VOLTAGES WITH LOAD

A

B

C

1

2

3

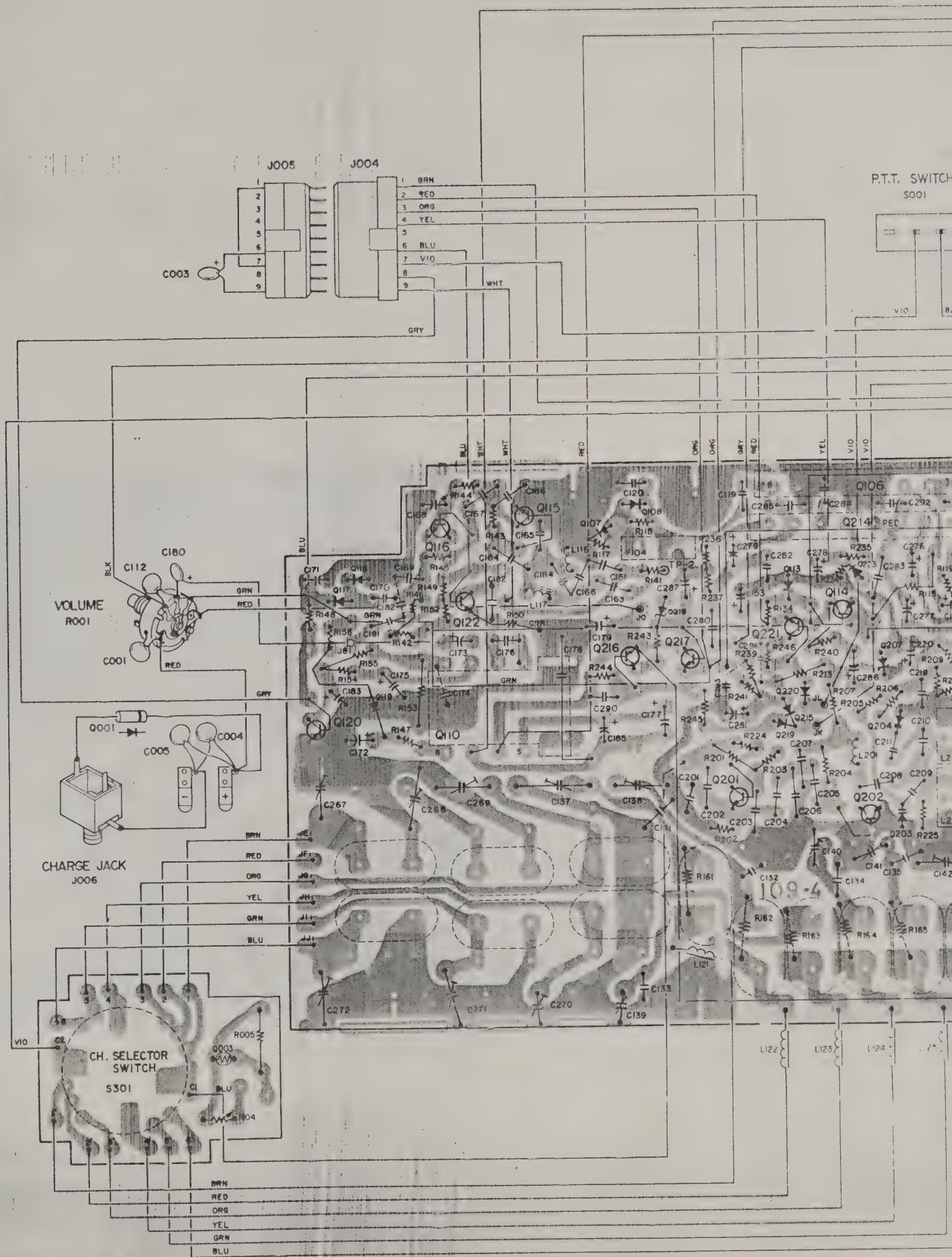
4

5

6

7

8



A

B

C

D

E

F

G

1

2

3

4

5

6

7

8

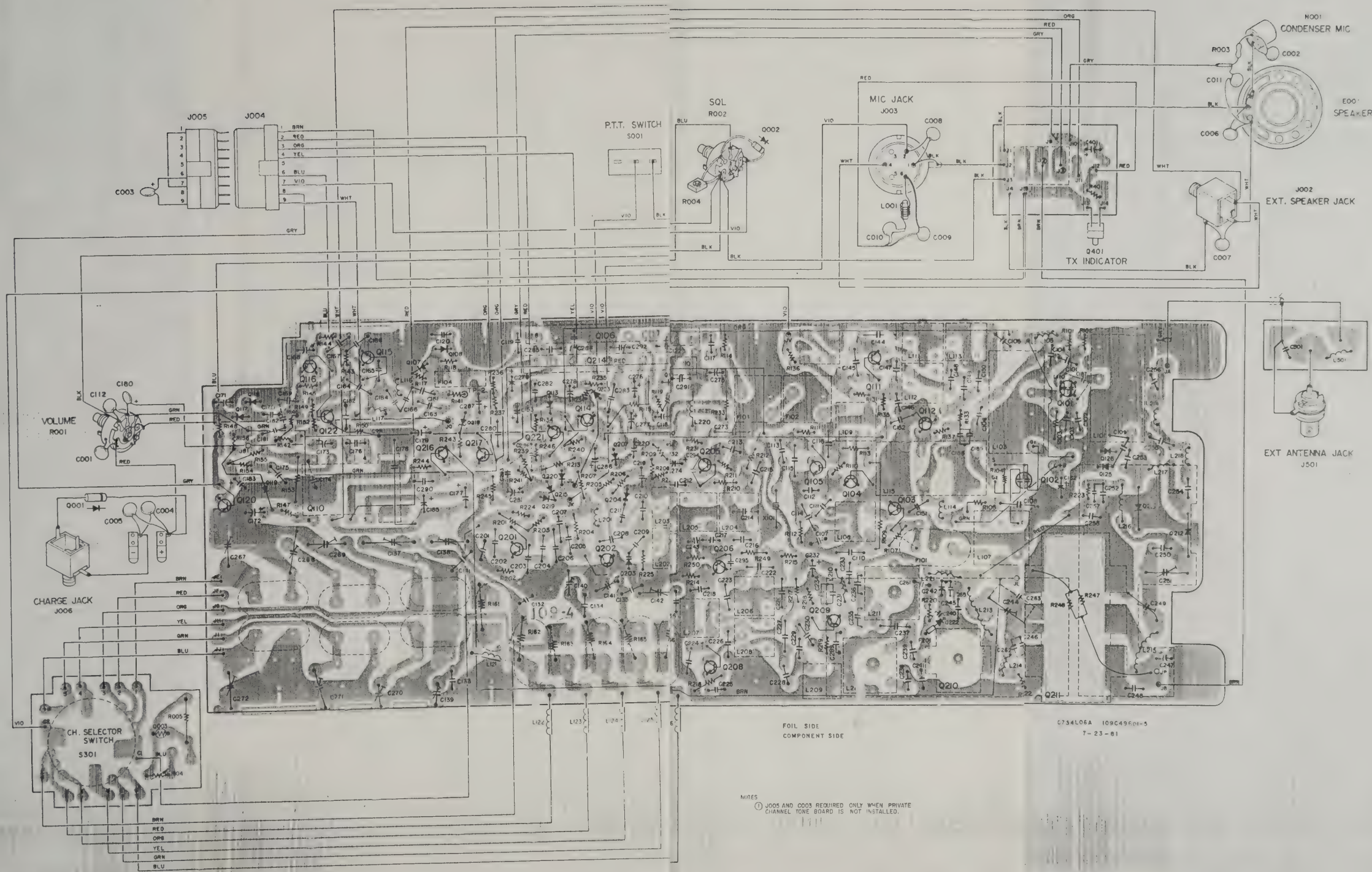


FIGURE 11. 734L P.C. BOARD LAYOUT

* R247, R251, R448 AND R482 ARE SELECTIVE VALUES FOR LOW POWER SETTING.

